Reviewer **Ray Leissner** Permit # **06S1264P6273**
Date **3-2-12** Company **Chapparral Energy**
Well # **Varies – area permit**
Location: **SE/4 of Section 10, S/2 of Section 11, SW/4 of Section 12, all o**

Section 14 and N/2 of Section 23, T **27**N, R **5**E

TECHNICAL REVIEW

Type of Injection Well: **[EOR – CO2flood, water alternating gas] [New and Conversion**

Injection: **[Cyclic- WAG]**

Approximate # Days operating/year **365**
Rate (B/M): **Saltwater – 124,000 bbls, CO2 - 186 MMCF at STP**
Wellhead Pressure (psi)**: Saltwater – 850 psig, CO2 – 2165 psig**
Fluid: TDS **40,000 mg/l** SP.GR. **1.1** Analysis Included: [Yes/No]
Source (Formation Name): **Burbank Sand**

Geologic Data (All references to depths are below land surface)

Base of Historical Usable Water: **245' subsurface in area specified**
Base of USDW and How Determined**: application, USDW maps**
Injection Interval: Top **2980** Bottom **3050** Effective Thickness **70'**
Formation Name **Burbank Sand** Lithology **Sandstone**
Porosity (%) **17** Initial Reservoir Pressure **845** Date **4/20/2010**
Permeability (**96 md**)
Confining Zones: Thickness between injection zone & USDW – **2745'**
Lithology **Shale with intermittent sand**
Cumulative Shale _ Thickest Shale Zone - **180'** (Interval) – **2970' – 2790'**

Well Data: (All references to depths are below land surface)

Surface Elevation **varies across area – average 1033'** (KB/GL) Total Depth – **305**
Date Drilled or to be Drilled **varies** Plugged Back Depth – **NA** Date Converted - **va**
Type Logs Available (this well/offset well): (By reference/included)
E logs, CBLs, varies
Test Data (By reference/included)

Construction performance based – typical existing well

Construction:	Size (In.)	Depth Interval	Cement Intervals	How Determined
Surface Csg.	**8/5/8**	**0 – 120'**	**circulated**	**records, logs**
Long String Csg.	**varies**	**0' – 2980'**	**0 – 295', 2480' – 2980'**	**records, logs**
Tubing	**varies**	**0 – 2980+'**		

Packer type & depth – **corrosion resistant - >2905'**

Construction performance based – newly drilled well

Construction:	Size (In.)	Depth Interval	Cement Intervals	How Determined
Surface Csg.	**varies**	**0 – 500'**	**circulated**	**records, CBL or temp l**
Long String Csg.	**varies**	**0' – 2980'**	**circulated or 2480' – 2980'**	**CBL or temp log**
Tubing	**varies**	**0 – 2980+'**		

Packer type & depth – **corrosive resistant - >2905'**

All wells including production wells must meet these construction standards.

Area of Review (**AOR = 1/4 mile beyond defined area above**)

Map Submitted: (**Yes**) Tabulation of Wells Submitted: (**Yes**)
Faults Located: **None Present**
Number of Wells in AOR: **approx. 240** Abandoned **approx. 126**
Production **varies** SWD **0 - eventually** EOR **varies**
#of Wells in Zone of Endangering Influence - **All wells in AOR considered in ZEI**
Number of Wells Requiring Corrective Action: **All known and located wellbores failing to meet the construction standards of the permit, within ¼ of any well to be**

erted to injection, must be plugged or reconstructed to meet those standards, mented by submission of BIA forms Nos. 208 or 139 before authorization to inject is d. Wells not located, but needing corrective action, may have a monitoring well tructed on site as directed by the EPA UIC Chief.

e of Endangering Influence

ZEI calculations were not conducted as the proposed injection is expected to te an unlimited zone of endangering influence.